

Exam Unit 3 (This exam is worth 92 points) version 2**Multiple Choice (Each correct response is worth 2 points)**

Identify the choice that best completes the statement or answers the question.

- C 1. For you to be able to run, _____ must relay messages from your central nervous system to your leg muscles.
- interneurons
 - agonists
 - motor neurons
 - sensory neurons
 - the autonomic nervous system
- A 2. A segment of DNA capable of synthesizing a specific protein is called a
- gene.
 - mutation.
 - chromosome.
 - hormone.
 - neurotransmitter.
- D 3. The thin surface layer of interconnected neural cells that covers the cerebrum is called the
- cerebellum.
 - corpus callosum.
 - reticular formation.
 - cerebral cortex.
 - sensory cortex.
- D 4. Consciousness is
- the ability to solve problems, reason, and remember.
 - the process of organizing and interpreting sensory information.
 - effortless encoding of incidental information into memory.
 - our awareness of ourselves and our environment.
 - brain waves that indicate we are not reacting to a stimulus.
- E 5. Adopted children are more likely to demonstrate levels of agreeableness and extraversion, more similar to that of their biological parents than their adoptive parents. This finding suggests that personality traits are more strongly influenced by
- genes than by heredity.
 - home environment than by genes.
 - environmental relatives than by genetic relatives.
 - nurture than by nature.
 - genes than by the home environment.

- D 6. A PET scan of a patient looking at a photograph of a painting would most likely indicate high levels of activity in which brain structure?
- sensory cortex
 - Broca's area
 - corpus callosum
 - occipital lobes
 - frontal lobes
- A 7. Psychologist Michael Gazzaniga asked split-brain patients to stare at a dot as he flashed HE·ART on a screen. HE appeared in the left visual field, ART in the right. When asked to point to the word with their left hand, patients pointed to
- HE.
 - ART.
 - HEART.
 - EA.
 - nothing. They were unable to complete the task.
- C 8. Evolutionary psychologists have suggested that men are _____ likely than women to prefer mates with a fertile-looking appearance and _____ likely than women to prefer mates with wealth and social status.
- more; more
 - less; less
 - more; less
 - less; more
 - more; equally
- B 9. Our lips are more sensitive than our knees to sensations of touch due to which of the following?
- More neurotransmitters are released when the lips are touched.
 - A larger area of the sensory cortex is associated with our lips.
 - The dendrites connected to the lips are especially sensitive.
 - The medulla routes impulses from the lips directly to our brainstem.
 - Our lips are directly connected to the sensory cortex, but our knees are not.
- B 10. The localization of a function such as speech production to the right or left side of the brain is called
- neurogenesis.
 - lateralization.
 - hemispherectomy.
 - plasticity.
 - reticular formation.
- B 11. Adaptation best illustrates
- mutation.
 - natural selection.
 - behavior genetics.
 - nurture influences.
 - behaviorism.

- D 12. Surgical destruction of brain tissue is called a(n)
a. endorphin.
b. EEG.
c. synapse.
d. lesion.
e. MRI.
- D 13. The diversity of human traits is enabled by our shared
a. individualism.
b. chromosomes.
c. natural selection.
d. adaptive capacity.
e. genome.
- C 14. Opiate drugs occupy the same receptor sites as
a. acetylcholine.
b. serotonin.
c. endorphins.
d. dopamine.
e. epinephrine.
- B 15. According to evolutionary psychologists, behaviors that promote reproductive success are likely to be
a. socially prohibited.
b. genetically predisposed.
c. ecologically disruptive.
d. disease-producing.
e. learned by association.
- D 16. An accelerated heartbeat is to a slowed heartbeat as the _____ nervous system is to the _____ nervous system.
a. somatic; autonomic
b. autonomic; somatic
c. central; peripheral
d. sympathetic; parasympathetic
e. parasympathetic; sympathetic
- E 17. The association areas are located in the
a. spinal cord.
b. brainstem.
c. thalamus.
d. limbic system.
e. cerebral cortex.

- D 18. The sequence of brain regions from the evolutionarily oldest to newest is
- limbic system; brainstem; cerebral cortex.
 - brainstem; cerebral cortex; limbic system.
 - limbic system; cerebral cortex; brainstem.
 - brainstem; limbic system; cerebral cortex.
 - cerebral cortex; brainstem; limbic system.
- C 19. Which of the following describes evidence for the brain's dual-processing ability?
- The right occipital lobe perceives stimuli from our left visual field.
 - The corpus callosum allows impulses to travel between the two hemispheres.
 - The brainstem keeps our heart beating while the cerebral cortex maintains awareness of the outside world.
 - The amygdala shares responsibility for some basic emotions with the hypothalamus and endocrine system.
 - The cerebral cortex is divided into two sets of lobes on each hemisphere.
- C 20. The study of the relative power and limits of genetic and environmental influences on behavior and personality traits is known as
- molecular genetics.
 - evolutionary psychology.
 - behavior genetics.
 - natural selection.
 - genome research.
- C 21. Which of the following is the component of the limbic system that plays an essential role in the processing of new memories?
- hypothalamus
 - thalamus
 - hippocampus
 - medulla
 - cerebellum
- C 22. The master gland of the endocrine system is the
- thyroid gland.
 - adrenal gland.
 - pituitary gland.
 - pancreas.
 - hypothalamus.
- E 23. The nineteenth-century theory that bumps on the skull reveal a person's abilities and traits is called
- evolutionary psychology.
 - behavior genetics.
 - molecular biology.
 - biological psychology.
 - phrenology.

- C 24. Heritability refers to the extent to which
- a. unrelated individuals share common genes.
 - b. genetic mutations can be transmitted to one's offspring.
 - c. trait differences among individuals are attributable to genetic variations.
 - d. adult personality is determined by infant personality.
 - e. nurture controls a trait rather than nature.
- A 25. The function of dendrites is to
- a. receive incoming signals from other neurons.
 - b. release neurotransmitters into the spatial junctions between neurons.
 - c. coordinate the activation of the parasympathetic and sympathetic nervous systems.
 - d. control pain through the release of opiate-like chemicals into the brain.
 - e. transmit signals to other neurons.
- D 26. Severing a cat's reticular formation from higher brain regions causes the cat to
- a. become violently aggressive.
 - b. cower in fear.
 - c. experience convulsive seizures.
 - d. lapse into a coma.
 - e. become sexually preoccupied.
- A 27. If a blind person uses one finger to read Braille, the brain area dedicated to that finger expands as the sense of touch invades the visual cortex. This is an example of
- a. brain plasticity.
 - b. hemispheric specialization.
 - c. neural prosthetics.
 - d. integrated association areas.
 - e. aphasia.
- E 28. Studies of identical twins who had been reared apart most clearly highlight the importance of _____ in personality development.
- a. natural selection
 - b. mutation
 - c. adoptive relatives
 - d. home environments
 - e. genetic predispositions
- D 29. Resting potential is to action potential as _____ is to _____.
- a. adrenal gland; pituitary gland
 - b. sensory neuron; motor neuron
 - c. temporal lobe; occipital lobe
 - d. polarization; depolarization
 - e. dendrite; axon

- A 30. The movement of positively charged ions across the membrane of a neuron can produce a(n)
- a. action potential.
 - b. synapse.
 - c. neurotransmitters.
 - d. myelin sheath.
 - e. interneuron.
- D 31. Psychoactive drugs interfere with normal neural transmission. Where does this interference take place?
- a. axon
 - b. cell body
 - c. myelin sheath
 - d. synapse
 - e. hormones
- E 32. Which psychological perspective most directly addresses questions about the relative influences of nature and nurture?
- a. behavioral perspective
 - b. humanistic perspective
 - c. psychopharmacology
 - d. cognitive perspective
 - e. biopsychosocial perspective
- B 33. Which kind of researcher is most likely to examine chromosomal differences between a fraternal twin who experiences a learning disability and one who doesn't?
- a. developmental psychologist
 - b. molecular geneticist
 - c. evolutionary psychologist
 - d. psychometrician
 - e. learning theorist
- C 34. In 1848, Phineas Gage, a railroad construction foreman, survived when an explosion drove an iron rod through his head. The once friendly, soft-spoken Gage became irritable and dishonest. Gage's case provided evidence that which region of the brain plays a role in personality and behavior?
- a. temporal lobes
 - b. sensory cortex
 - c. frontal lobes
 - d. parietal lobes
 - e. Broca's area
- C 35. Someone who has difficulty speaking after a stroke is suffering from which of the following?
- a. neurogenesis
 - b. lesion
 - c. aphasia
 - d. angular gyrus
 - e. interneurons

- D 36. Evolutionary psychologists are most likely to emphasize that human adaptiveness to a variety of different environments has contributed to human
- naturalistic observation.
 - genetic mutations.
 - behavior correlations.
 - reproductive success.
 - prenatal development.
- B 37. Information is most quickly transmitted from one cerebral hemisphere to the other by the
- medulla.
 - corpus callosum.
 - angular gyrus.
 - limbic system.
 - reticular formation.
- B 38. Professor Seif conducts research on the relationship between the limbic system and sexual motivation. Her research interests best represent the psychological speciality known as
- behaviorism.
 - biological psychology.
 - psychoanalysis.
 - myelin.
 - behavior genetics.
- C 39. One function of the glial cells is to
- control heartbeat and breathing.
 - mimic the effects of neurotransmitters.
 - provide nutrients to interneurons.
 - stimulate the production of hormones.
 - control the muscle movements involved in speech.
- A 40. An all-or-none response pattern is characteristic of the
- initiation of neural impulses.
 - release of endorphins into the central nervous system.
 - release of hormones into the bloodstream.
 - activation of either the sympathetic or the parasympathetic system.
 - excitation of the antagonistic hormonal system.
- C 41. The "little brain" attached to the rear of the brainstem is called the
- limbic system.
 - corpus callosum.
 - cerebellum.
 - reticular formation.
 - thalamus.

Short Answer (Each short answer question is worth 5 points)

1. Briefly describe Gazzaniga's research with split-brain patients, including the finding that the left brain is the “interpreter” of our actions.
2. Dr. Taylor discovers a chemical that is a very effective agonist for serotonin. Briefly explain how this chemical might affect human behavior, and identify the condition Dr. Taylor might treat with this chemical.
3. Briefly summarize the functions of the brain structures in the brainstem and limbic system.
4. Briefly describe the genetic differences between identical and fraternal twins, and explain why behavior geneticists are interested in studying twins to investigate nature-nurture issues.

SHORT ANSWER

1. ANS:

Students should briefly describe how Gazzaniga worked with patients whose corpus callosums were split in order to reduce epileptic seizures, exposing each hemisphere to different sensory input. These studies showed that the left brain offers interpretations of our behaviors, even when the reasons behind our actions are unclear.

PTS: 1 REF: Section- Biological Bases of Behavior: 3B—The Brain
MSC: Conceptual | Application

2. ANS:

Students should identify that because the chemical is an agonist for serotonin, it is molecularly similar enough to serotonin to activate serotonin receptor sites, elevating mood. This chemical might be effective in treating mood disorders such as depression.

PTS: 1 REF: Section- Biological Bases of Behavior: 3A—Neural Processing and the Endocrine System
MSC: Conceptual | Application

3. ANS:

Students should summarize the function of the brainstem as “life support” (functions such as heartbeat, consciousness, and so on) and the function of the limbic system as “emotion/arousal” (functions such as basic emotions of fear/rage, and fight-or-flight responses).

PTS: 1 REF: Section- Biological Bases of Behavior: 3B—The Brain
MSC: Conceptual | Application

4. ANS:

Students should explain that identical twins have the same genetic code because they developed from one fertilized egg; fraternal twins share about half their genetic code because they developed from two fertilized eggs. Behavior geneticists study both kinds of twins to learn the relative influence of genetics on specific traits.

PTS: 1 REF: Section- Biological Bases of Behavior: 3C—Genetics-Evolutionary Psychology-and Behavior
MSC: Conceptual | Application